

function for one of sending data and recovering distorted data;

a second ASIC mounted on the system circuit board and electrically coupled to the first ASIC through the electrical traces for conveying electrical signals therebetween, the second ASIC including a clocking and equalization/retiming function for one of sending data and recovering distorted data;

one of an optical receiver having an amplifier and an optical transmitter having a laser diode and a laser driver electrically coupled to the first ASIC; and

at least one board level IC chip electrically coupled to the second ASIC.

24. (New) A high speed optical data link as claimed in claim 23 wherein the electrical traces of the system circuit board electrically coupling the first ASIC and the second ASIC are connected to carry electrical signals at a rate equal to at least 5-gigabits per second.

25. (New) A high speed optical data link as claimed in claim 24 wherein the first ASIC includes a clocking and equalization/retiming function for sending data and the second ASIC includes a clocking and equalization/retiming function for recovering data distorted by transmission through the electrical traces, and the second ASIC clocking and equalization/retiming function recovering the distorted data through the same clocking function as provided by the first ASIC.

26. (New) A high speed optical data link as claimed in claim 23 wherein the amplifier of the optical receiver includes a photodiode and a trans-impedance/post-amplifier.

27. (New) A high-speed optical data link for communicating information at rates equal to at least 5-gigabits per second on a circuit board comprising:

a system circuit board having electrical traces;

a board level IC mounted on the system circuit board and an ASIC mounted in an optical transceiver module and connected to the IC through the electrical traces of the

system circuit board, the electrical traces of the system circuit board electrically coupling the ASIC to the board level IC being connected to carry electrical signals at a rate equal to at least 5-gigabits per second for conveying electrical signals between the IC and the ASIC;

a fiber optic receiver mounted in the optical transceiver module, the receiver including a photo diode positioned to receive optical signals from a remote optical source, a trans-impedance/post-amplifier electrically coupled to the photo diode and the ASIC in the optical transceiver module, the ASIC including one of a clocking function and an equalization/retiming function for data transmission through the electrical traces; and

a fiber optic transmitter mounted in the optical transceiver module, the transmitter including a laser positioned to convey optical signals to an external optical receiver, a laser driver electrically coupled to the laser and to the ASIC in the optical transceiver module, the ASIC in the optical transceiver module including an equalization/retiming function for recovering data distorted by transmission through the electrical traces for data transmission through the laser.

28. (New) A method of electrically communicating information at rates equal to at least 5-gigabits per second on a circuit board comprising the steps of:

providing a system circuit board including electrical traces and a first position and a second position;

receiving electrical signals from an external source at the first position on the system circuit board;

clocking and equalizing/retiming the electrical signals on the system circuit board for data transmission through the electrical traces;

conveying the equalized signals through the electrical traces to the second position on the system circuit board at a rate equal to at least 5-gigabits per second; and

receiving the equalized signals at the second position and recovering signals distorted by transmission through the electrical traces using a clock recovery and equalization/retiming step.

29. (New) A method as claimed in claim 28 wherein the step of receiving the equalized signals at the second

position and recovering signals includes recovering the distorted signals through the same clocking function as provided by the clocking and equalizing/retiming step.